# COOP Modernization Partners' Forum

**September 18, 2002**
**Rockville, Maryland**

## EXECUTIVE SUMMARY

Overview

NOAA organized the Cooperative Observer Program (COOP) Modernization Partners' Forum to inform its partners (federal agencies and state and private interests) about plans for network modernization and to solicit comments and input. Throughout the course of the meeting, each participant was asked to consider how they could assist NOAA in making COOP modernization happen.

COOP Contributions

COOP is one of our nation's true treasures, a goldmine providing one of the most comprehensive climate observing system records available, with U.S. temperature and precipitation spanning more than 100 years. The unique history and role of the COOP network has been an example of extraordinary public service, as its success has depended upon the dedication of thousands of volunteer observers throughout the last century.

COOP data are the most requested NOAA dataset; they have many applications and are of great national importance. For example, they are used to identify U.S. spatial and temporal temperature gradients. Other applications include defining climate normals, maximum and minimum temperatures, precipitation, snowfall, and snow depth. COOP data also are used to address and define temperature and precipitation nationwide. Additionally, COOP currently provides the best record of climate in the U.S., and it provides context for extreme events such as drought and flood.

The Drought Monitor is a collaborative product developed by USDA, NWS, and the National Drought Mitigation Center that provides a large-scale snapshot of drought conditions across the U.S. COOP data input to the Drought Monitor is indispensable. The long-term COOP record provides a unique source for analog years and research purposes.

Monitoring Climate Change

The modernization of COOP is closely related to the President's Climate Change Research Initiative, providing a richer source of data to improve weather and climate forecasting and to contribute to climate change research. The COOP network is the primary source for monitoring U.S. climate variability over weekly to interannual time frames. These data are also the basis for assessments of century-scale climate change. The modernized COOP network will add to NOAA's vision of an end-to-end monitoring program that "takes the temperature" of the earth's systems. NOAA is also developing and implementing a Climate Reference Network (USCRN), which will compliment COOP.

Modernization

In general, COOP modernization will improve data services and utilize new technology to meet both present and future needs. Proposed improvements include increasing the density of stations in the western U.S. and Alaska and providing near real-time dissemination of nationwide data. Temperature and precipitation information will be automatically recorded hourly at 8000 stations, while 6-hourly or daily snowfall will be manually measured at about 6000 stations.

The proposed modernization of the COOP network has the potential to fill in data gaps on the local scale, where most decision-making takes place. This will improve the ability of NWS to forecast weather and extreme events such as flood and drought, providing improved information for decision-making. Modernized COOP data will allow improved early warnings that will help mitigate the impacts from these extreme events.

The following five components, which were the basis of success for the Oklahoma Mesonet, are also applicable to COOP modernization:

- Users were involved from Day One.
- Products were developed in direct partnership with users.
- Strong partnerships existed with mission agencies and with research elements.
- Information was accessible in real time.
- Education of users and potential users was an important element of the program.

At current funding levels, deployment will take longer than the original plan to phase in the modernized system over eight years. It is feasible to deploy the system faster than this with a combination of increased federal support and non-federal participation. Because of this long time frame, Phase 1 of the modernization plan addresses the current maintenance needs of the network, and a marked improvement is expected over the next two years

COOP modernization will meet NRC recommendations and will provide increased ability to forecast extreme events and to monitor drought and snowfall. It will provide for data continuity, better data for decision-making, and near real-time data availability. The COOP network is important for preserving the past and monitoring the future.

Manning the Network

The COOP requires dedicated people to serve as observers. In recent years, there has been a decline in the number of COOP stations, not because of budget constraints, but because of changes in society and lifestyles. For example, there has been a demographic shift, with people moving away from small farms. As a result, it has become harder to recruit people into the COOP in agricultural areas.

In the past, each COOP station was a true cooperative venture, with the individual operating his station through taking manual observations. The four observers present at the meeting all strongly supported the modernization effort and considered automation of

the observations an improvement while expressing the wish to still have access to their station's data.

Economics and Funding Issues

Data currently is not a high priority in Washington, DC. Under present funding levels, COOP modernization will take longer than eight years. With sufficient resources, full implementation of the modernization could be achieved in 2-5 years. NOAA will continue to pursue additional funding, but an accelerated modernization timeline would require partner support.

The COOP network has great economic value. The value of these data is hard to quantify, but about one-quarter of the U.S. economy (or about $2 trillion) is weather-sensitive. Decreased temperature forecast error, possible with a modernized COOP, would alone be a strong case to accelerate modernization from a business standpoint, providing savings of 8-10 times the cost of the modernization in the first year of data availability.

COOP and the Private Sector

Many future applications of COOP data will come from the private sector, and the focus that NOAA places on the COOP network will be validated by this use. Representatives of the private sector participating in the meeting voiced strong support for modernization. For example, to the Weather Risk Management Association (WRMA), accurate and timely daily weather data are critical and as important as daily currency exchange rates are to the financial community.

Private interests also have special needs for information. For example, COOP stations located near hydroelectric dams provide information that electric utilities need to assess hydroelectric reserves. Weather Factor, a private company that serves national marketers of products and services, expressed the need for more stations to be placed in highly populated urban areas.

Closing Comments

NOAA's goal for this forum was to identify ways to make COOP modernization a success. Together with its partners, NOAA has an opportunity to build a modernized COOP network that can play an improved role in the nation's weather and climate monitoring and enhance the general well-being of the nation. Hopefully, during the forum, partners identified their own potential roles and tasks in the modernization effort.